

# **EXHIBIT 1**



## Sequence Revision History

PubMed

Nucleotide

Protein

Genome

Structure

PMC

Taxonomy

OMIM

Books

Find (Accessions, GI numbers or Fasta style SeqIds) 

Go

Clear

About Entrez

Show

difference between I and II as

GenBank/GenPept

|

Entrez

### Search for Genes

LocusLink provides curated information for human, fruit fly, mouse, rat, and zebrafish

Help/FAQ

Batch Entrez: Upload a file of GI or accession numbers to retrieve protein or nucleotide sequences

Check sequence revision history

How to create WWW links to Entrez

LinkOut

Cubby

### Related resources

BLAST

Reference sequence project

LocusLink

Clusters of orthologous groups

Protein reviews on the web

### Revision history for X52066

GI	Version	Update Date	Status	I	II
40381	1	Aug 8 2003 11:51	Live		
40381	1	Oct 17 2002 3:35	Dead		
40381	1	Mar 8 1999 4:30	Dead		
40381	1	May 26 1996 2:31	Dead		
40381	1	May 21 1995 4:23	Dead		
40381	1	Nov 30 1994 11:08	Dead		
40381	1	Aug 31 1993 1:05	Dead		
40381	1	Apr 21 1993 8:19	Dead		

Accession X52066 was first seen at NCBI on Apr 21 1993 8:19

[Disclaimer](#) | [Write to the Help Desk](#)  
[NCBI](#) | [NLN](#) | [NIH](#)



Entrez

PubMed

Nucleotide Protein Genome Structure PMC Taxonomy

Books

Search  for

Limits Preview/Index History Clipboard Details

Show:

1: X52066. Clostridium botul...[gi:40381]

Links

LOCUS CBBOTAG 4292 bp DNA linear BCT 12-SEP-1993  
 DEFINITION Clostridium botulinum botA gene for type A neurotoxin.  
 ACCESSION X52066 X52088  
 VERSION X52066.1 GI:40381  
 KEYWORDS botA gene; neurotoxin; secreted protein.  
 SOURCE Clostridium botulinum  
 ORGANISM Clostridium botulinum  
 Bacteria; Firmicutes; Clostridia; Clostridiales; Clostridiaceae;  
 Clostridium.  
 REFERENCE 1 (bases 1 to 4292)  
 AUTHORS Thompson,D.E., Brehm,J.K., Oultram,J.D., Swinfield,T.J.,  
 Shone,C.C., Atkinson,T., Melling,J. and Minton,N.P.  
 TITLE The complete amino acid sequence of the Clostridium botulinum type  
 A neurotoxin, deduced by nucleotide sequence analysis of the  
 encoding gene  
 JOURNAL Eur. J. Biochem. 189 (1), 73-81 (1990)  
 MEDLINE 90235864  
 PUBMED 2185020  
 REFERENCE 2 (bases 1 to 4292)  
 AUTHORS Minton,N.P.  
 TITLE Direct Submission  
 JOURNAL Submitted (08-JAN-1990) Minton N.P., PHLS Centre for Applied  
 Microbiology & Research, Molecular Genetics Group, Division of  
 Biotechnology, Porton Down, Salisbury SP4 0JG Wiltshire, U K  
 FEATURES Location/Qualifiers  
 source 1..4292  
 /organism="Clostridium botulinum"  
 /mol\_type="genomic DNA"  
 /strain="sub sp. type A, NCTC2916"  
 /db\_xref="taxon:1491"  
 misc\_feature 16..64  
 /note="dyad symmetry"  
 promoter 19..24  
 /note="-35 region"  
 promoter 41..46  
 /note="-10 region"  
 RBS 63..68  
 /note="ribosome binding site"  
 CDS 77..3967  
 /note="unnamed protein product; type A neurotoxin (AA  
 1-1296)"  
 /codon\_start=1  
 /transl\_table=11  
 /protein\_id="CAA36289.1"  
 /db\_xref="GI:40382"  
 /db\_xref="GOA:P10845"  
 /db\_xref="SWISS-PROT:P10845"  
 /translation="MQFVNKQFNKYKDPVNGVDIAYIKIPNVGQMOPVKAFKIHNKIWV

IPERDFTTNPEEGDLNPPPEAKQVPVSYDYDSTYLSTDNEKDNLYLKGVTKLFERIYSTD  
LGRMLLTSIVRGIPFWGGSTIDTELKVIDTNCINVIQPDGSYRSEELNLVIIGPSADI  
IQFECKSFGEVLNLTRNGYGSTQYIRFSPDFTFGFEESLEVDTNPLLGAGKFATDPA  
VTLAHELIIHAGHRLYGIAINPNRVFKVNTNAYYEMSGLEVSFEELRTFGGHDAKFIDS  
LQENEFRLYYNKFCDIASTLNKAKSIVGTTASLQYMKNVFKEKYLLEDTSKGFSVD  
KLKFDKLYKMLTEIYTEDNFVKFFKVLNRKTYLNFDAVKINIVPKVNYTIYDGNL  
RNTNLAANFNGQNTENNMMFTKLKNFTGLFEFYKLLCVRGIITSKTKSLDKGYNKAL  
NDLCIKVNNWDLFFSPSEDNFTNDLNKGEEITSDTNIEAAEENISLDLIQYYLTFNF  
DNEPENISIEENLSSDIIGQLELMPNIEFNPNGKKYELDKYTMFHYLRAQEFHKGKSRI  
ALTNSVNEALLNPSRVYTFSSDYVKKVNKATEAAMFLGWVEQLVYDFTDETSEVSTT  
DKIADITIIIPYIGPALNIGNMLYKDDFVGALIFSGAVILLEFIPEIAIPVLGTFALV  
SYIANKVLTVQITIDNALSKEKWEVYKYIVTNWLAKVNTQIDLRKKMKEALENQ  
EATKAIINYQYNQYTEEEKNNINFNIDDLSSKLNESINKAMININKFLNQCSVSYLMN  
SMIPYGVKRLDFDASLKDALLKYIYDNRGTLIGQVDRKDKVNNLTSTDIPFQLSKY  
VDNQRLSTFTTEYIKNIINTSILNRYESNHLIDLRSYASKINIGSKVNFDPIDKNQI  
QLFNLESSKIEVILKNAIVNSMYENFSTFWIRIPKYFNSISLNNEYTIINCMENNS  
GWKVSILNYGEIWTQLQDTEIKQVVFYKYSQMINISDYINRWIFVTITNNRLNNSKIY  
INGRLIDQKPISNLGNIHASNNIMFKLDGCRDTHRYIWIYFNLFDKELNEKEIKDLY  
DNQSNISGILKDFWGDYLDYDKPYMLNLYDPNKYVDVNVGIRGYMYLKGPRGSVMTT  
NIYLNSSLYRGTKFIIKKYASGNKDNIVRNNDRVYINVVVNKEYRLATNASQAGVEK  
ILSALEIPDVGNLSQVVMKSKNDQGITNKCKMNLQDNNNGNDIGFIGFHQFNNAIKLV  
ASNWYNRQIERSSRTLGCSEWEIFPVDDGWGERPL"

misc\_feature 4042..4087  
/note="dyad symmetry"  
misc\_feature 4104..4136  
/note="dyad symmetry"  
misc\_feature 4158..4188  
/note="dyad symmetry"

## ORIGIN

1	tcaaagtatt	tgtatttatg	gtcattttaa	taattaataa	tttaattaat	tttaaatatt
61	ataagagggtg	ttaaatatgc	aatttggttaa	taaacaattt	aattataaag	atcctgtaaa
121	tgggtgttgat	attgcttata	taaaaattcc	aatgtagga	caaatgcaac	cagtaaaagc
181	ttttaaaatt	cataataaaa	tatgggttat	tccagaaaaga	gatacattta	caaatcctga
241	agaaggagat	ttaaatccac	caccagaagc	aaaacaagtt	ccagtttcat	attatgattc
301	aacatatttta	agtacagata	atgaaaaaga	taattattta	aaggagatta	caaaattatt
361	tgagagaatt	tattcaactg	atccttggaag	aatgttgta	acatcaatag	taaggggaat
421	accatttttg	ggtggaagta	caatagatac	agaattaaaa	gttattgata	ctaattgtat
481	taatgtgata	gaaccagatg	gtagttatag	atcagaagaa	cttaacttag	taataatagg
541	accctcagct	catattatac	agtttgtaag	taaaagcttt	ggacatgaag	ttttgaatct
601	tacgcgaaat	ggttatggct	ctactcaata	cattagattt	agcccagatt	ttacatttgg
661	ttttgaggag	tcacttgaag	ttgatacaaa	tcctctttta	ggtgcaggca	aatttgctac
721	agatccagca	gtaacattag	cacatgaact	tatacatgct	ggacatagat	tatatggaat
781	agcaattaat	ccaaataggg	tttttaaagt	aaataactaat	gcctattatg	aatgagtg
841	gttagaagta	agctttgagg	aacttagaac	atttggggga	catgatgcaa	agtttataga
901	tagttttacag	gaaaacgaat	ttcgtctata	ttattataat	aagtttaag	atatagcaag
961	tacacttaat	aaagctaaat	caatagtagg	tactactgct	tcattacagt	atatgaaaaa
1021	tgttttttaa	gagaaatata	tcctatctga	agatacatct	ggaaaatttt	cggtagataa
1081	attaaaattt	gataagttat	acaaaatggt	aacagagatt	tacacagagg	ataattttgt
1141	taagtttttt	aaagtactta	acagaaaaac	atatttgaat	tttgataaag	ccgtatttaa
1201	gataaatata	gtacctaaag	taaaattacac	aatatatgat	ggatttaatt	taagaaatac
1261	aaatttagca	gcaaacttta	atggtcaaaa	tacagaaatt	aataatatga	attttactaa
1321	actaaaaaat	tttactggat	tgtttgtaatt	ttataagttg	ctatgtgtaa	gagggataat
1381	aacttctaaa	actaaatcat	tagataaagg	atacaataag	gcattaaatg	atttatgtat
1441	caaagttaat	aattgggact	tgttttttag	tccttcagaa	gataatttta	ctaattgatc
1501	aaataaagga	gaagaaatta	catctgatac	taatatagaa	gcagcagaag	aaaatattag
1561	tttagattta	atacaacaat	attatttaac	ctttaatttt	gataatgaac	ctgaaaatat
1621	ttcaatagaa	aatctttcaa	gtgacattat	aggccaatta	gaacttatgc	ctaatataga
1681	aagatttcct	aatggaaaaa	agtatgagtt	agataaatat	actatgttcc	attatcttcg
1741	tgctcaagaa	tttgaacatg	gtaaatctag	gattgcttta	acaaaattctg	ttaacgaagc
1801	attattaaaat	cctagtctgtg	tttatacatt	ttttcttca	gactatgtaa	agaaagttaa

1861 taaagctacg gaggcagcta tgttttttagg ctgggtagaa caattagtat atgattttac  
1921 cgatgaaact agcgaagtaa gtactacgga taaaattgcg gatataacta taattattcc  
1981 atatatagga cctgcttttaa atataggtaa tatgttatat aaagatgatt ttgtagggtgc  
2041 ttttaatatTTT tcaggagctg ttattctgtt agaatttata ccagagattg caatacctgt  
2101 attaggtagt tttgcacttg tatcatatat tgcgaataag gttctaaccg ttcaaacaat  
2161 agataatgct ttaagtaaaa gaaatgaaaa atgggatgag gtctataaat atatagtaac  
2221 aaattgggta gcaaagggta atacacagat tgatctaata agaaaaaaaa tgaagaagc  
2281 tttagaaaaa caagcagaag caacaaaggc tataataaac tatcagtata atcaatatac  
2341 tgagggaagag aaaaaataata ttaatttttaa tattgatgat ttaagtTCga aacttaatga  
2401 gtctataaat aaagctatga ttaatatataa taaatttttg aatcaatgct ctgtttcata  
2461 tttaatgaat tctatgatcc cttatgggtg taaacgggta gaagattttg atgctagtct  
2521 taaagatgca ttattaaagt atatatatga taatagagga actttaattg gtcaagtaga  
2581 tagattaaaa gataaagtta ataatacact tagtacagat ataccttttc agctttccaa  
2641 atacgtagat aatcaaagat tattatctac atttactgaa tatattaaga atattattaa  
2701 tacttctata ttgaatttaa gatatgaaag taatcattta atagacttat ctaggtagtc  
2761 atcaaaaata aatatgggta gtaaaagtaa ttttgatcca atagataaaa atcaaattca  
2821 attattttaat ttgaaaagta gtaaaattga ggtaatttta aaaaatgcta ttgtatataa  
2881 tagtatgtat gaaaatttta gtactagctt ttggataaga attcctaagt attttaacag  
2941 tataagtcta aataatgaat atacaataat aaattgtatg gaaaaataat caggatggaa  
3001 agtatcactt aattatgggtg aaataatctg gactttacag gatactcagg aaataaaaca  
3061 aagagtagtt tttaaataca gtcaaatgat taatatatca gattatataa acagatggat  
3121 ttttgtaact atcactaata atagattaaa taactctaaa atttatataa atggaagatt  
3181 aatagatcaa aaaccaattt caaatttagg taatattcat gctagtaata atataatgtt  
3241 taaatttagat ggttgtagag atacacatag atatatTTgg ataaaatatt ttaactcttt  
3301 tgataaggaa ttaaatgaaa aagaaatcaa agatttatat gataatcaat caaattcagg  
3361 tatttttaaaa gacttttggg gtgattattt acaatatgat aaaccatact atatgttaaa  
3421 tttatatgat ccaaataaat atgtcgatgt aaataatgta ggtatttagag gttatatgta  
3481 tcttaaaggg cctagaggta gcgtaatgac tacaaacatt tatttaaat caagtttgta  
3541 taggggggaca aaatttatta taaaaaaata tgcttctgga aataaagata atattgttag  
3601 aaataatgat cgtgtatata ttaatgtagt agttaaaaat aaagaatata ggttagctac  
3661 taatgcatca caggcaggcg tagaaaaaat actaagtgca ttagaaatac ctgatgtagg  
3721 aaatctaagt caagtagtag taatgaagtc aaaaaatgat caaggaataa caaataaatg  
3781 caaatgaat ttacaagata ataattgggaa tgatataggc tttataggat ttcacagt  
3841 taataatata gctaaactag tagcaagtaa ttggtataat agacaaatag aaagatctag  
3901 taggactttg ggttgctcat ggggaatttat tcctgtagat gatggatggg gagaaaggcc  
3961 actgtaatta atctcaaaact acatgagctt gtcaagaatt ttctgtaaac atccataaaa  
4021 atttttaaat taatatgttt aagaataact agatatgagt attgctatgc taatatctag  
4081 ttatttttaat ttattcaata ttattacagt aagaaaaaat actattttta ttgtaaatac  
4141 aagtttagtg gtatatctca taaatgatac aagatatcat tataatgatt ttgcaaat  
4201 tagttttgaa taaatatatt tacagtattt ttgaaatgat aataattact tcaaattctt  
4261 tagtataatt ttttaatgtc ttaattttta ca

//

[Disclaimer](#) | [Write to the Help Desk](#)  
[NCBI](#) | [NLM](#) | [NIH](#)